Fig. 1

```
5`-ATGAGGTCAGAAGCCTTGCTGCTATATTTCACACTGCTACACTTTGCTGG          50
   GGCTGGTTTCCCAGAAGATTCTGAGCCAATCAGTATTTCGCATGGCAACT         100
   ATACAAAACAGTATCCGGTGTTTGTGGGCCACAAGCCAGGACGGAACACC         150
   ACACAGAGGCACAGGCTGGACATCCAGATGATTATGATCATGAACGGAAC         200
   CCTCTACATTGCTGCTAGGGACCATATTTATACTGTTGATATAGACACAT         250
   CACACACGGAAGAAATTTATTGTAGCAAAAAACTGACATGGAAATCTAGA         300
   CAGGCCGATGTAGACACATGCAGAATGAAGGGAAAACATAAGGATGAGTG         350
   CCACAACTTTATTAAAGTTCTTCTAAAGAAAAACGATGATGCATTGTTTG         400
   TCTGTGGAACTAATGCCTTCAACCCTTCCTGCAGAAACTATAAGATGGAT         450
   ACATTGGAACCATTCGGGGATGAATTCAGCGGAATGGCCAGATGCCCATA         500
   TGATGCCAAACATGCCAACGTTGCACTGTTTGCAGATGGAAAACTATACT         550
   CAGCCACAGTGACTGACTTCCTTGCCATTGACGCAGTCATTTACCGGAGT         600
   CTTGGAGAAAGCCCTACCCTGCGGACCGTCAAGCACGATTCAAAATGGTT         650
   GAAAGAACCATACTTTGTTCAAGCCGTGGATTACGGAGATTATATCTACT         700
   TCTTCTTCAGGGAAATAGCAGTGGAGTATAACACCATGGGAAAGGTAGTT         750
   TTCCCAAGAGTGGCTCAGGTTTGTAAGAATGATATGGGAGGATCTCAAAG         800
   AGTCCTGGAGAAACAGTGGACGTCGTTCCTGAAGGCGCGCTTGAACTGCT         850
   CAGTTCCTGGAGACTCTCATTTTTATTTCAACATTCTCCAGGCAGTTACA         900
   GATGTGATTCGTATCAACGGGCGTGATGTTGTCCTGGCAACGTTTTCTAC         950
   ACCTTATAACAGCATCCCTGGGTCTGCAGTCTGTGCCTATGACATGCTTG        1000
   ACATTGCCAGTGTTTTTACTGGGAGATTCAAGGAACAGAAGTCTCCTGAT        1050
   TCCACCTGGACACCAGTTCCTGATGAACGAGTTCCTAAGCCCAGGCCAGG        1100
   TTGCTGTGCTGGCTCATCCTCCTTAGAAAGATATGCAACCTCCAATGAGT        1150
   TCCCTGATGATACCCTGAACTTCATCAAGACGCACCCGCTCATGGATGAG        1200
   GCAGTGCCCTCCATCTTCAACAGGCCATGGTTCCTGAGAACAATGGTCAG        1250
   ATACCGCCTTACCAAAATTGCAGTGGACACAGCTGCTGGGCCATATCAGA        1300
   ATCACACTGTGGTTTTTCTGGGATCAGAGAAGGGAATCATCTTGAAGTTT        1350
   TTGGCCAGAATAGGAAATAGTGGTTTTCTAAATGACAGCCTTTTCCTGGA        1400
   GGAGATGAGTGTTTACAACTCTGAAAAATGCAGCTATGATGGAGTCGAAG        1450
   ACAAAAGGATCATGGGCATGCAGCTGGACAGAGCAAGCAGCTCTCTGTAT        1500
   GTTGCGTTCTCTACCTGTGTGATAAAGGTTCCCCTTGGCCGGTGTGAACG        1550
   ACATGGGAAGTGTAAAAAAACCTGTATTGCCTCCAGAGACCCATATTGTG        1600
   GATGGATAAAGGAAGGTGGTGCCTGCAGCCATTTATCACCCAACAGCAGA        1650
```

Fig. 1 (cont.)

CTGACTTTTGAGCAGGACATAGAGCGTGGCAATACAGATGGTCTGGGGGA	1700
CTGTCACAATTCCTTTGTGGCACTGAATGGGCATTCCAGTTCCCTCTTGC	1750
CCAGCACAACCACATCAGATTCGACGGCTCAAGAGGGGTATGAGTCTAGG	1800
GGAGGAATGCTGGACTGGAAGCATCTGCTTGACTCACCTGACAGCACAGA	1850
CCCTTTGGGGGCAGTGTCTTCCCATAATCACCAAGACAAGAAGGGAGTGA	1900
TTCGGGAAAGTTACCTCAAAGGCCACGACCAGCTGGTTCCCGTCACCCTC	1950
TTGGCCATTGCAGTCATCCTGGCTTTCGTCATGGGGGCCGTCTTCTCGGG	2000
CATCACCGTCTACTGCGTCTGTGATCATCGGCGCAAAGACGTGGCTGTGG	2050
TGCAGCGCAAGGAGAAGGAGCTCACCCACTCGCGCCGGGGCTCCATGAGC	2100
AGCGTCACCAAGCTCAGCGGCCTCTTTGGGGACACTCAATCCAAAGACCC	2150
AAAGCCGGAGGCCATCCTCACGCCACTCATGCACAACGGCAAGCTCGCCA	2200
CTCCCGGCAACACGGCCAAGATGCTCATTAAAGCAGACCAGCACCACCTG	2250
GACCTGACGGCCCTCCCCACCCCAGAGTCAACCCCAACGCTGCAGCAGAA	2300
GCGGAAGCCCAGCCGCGGCAGCCGCGAGTGGGAGAGGAACCAGAACCTCA	2350
TCAATGCCTGCACAAAGGACATGCCCCCCATGGGCTCCCCTGTGATTCCC	2400
ACGGACCTGCCCCTGCGGGCCTCCCCCAGCCACATCCCCAGCGTGGTGGT	2450
CCTGCCCATCACGCAGCAGGGCTACCAGCATGAGTACGTGGACCAGCCCA	2500
AAATGAGCGAGGTGGCCCAGATGGCGCTGGAGGACCAGGCCGCCACACTG	2550
GAGTATAAGACCATCAAGGAACATCTCAGCAGCAAGAGTCCCAACCATGG	2600
GGTGAACCTTGTGGAGAACCTGGACAGCCTGCCCCCCAAAGTTCCACAGC	2650
GGGAGGCCTCCCTGGGTCCCCCGGGAGCCTCCCTGTCTCAGACCGGTCTA	2700
AGCAAGCGGCTGGAAATGCACCACTCCTCTTCCTACGGGGTTGACTATAA	2750
GAGGAGCTACCCCACGAACTCGCTCACGAGAAGCCACCAGGCCACCACTC	2800
TCAAAAGAAACAACACTAACTCCTCCAATTCCTCTCACCTCTCCAGAAAC	2850
CAGAGCTTTGGCAGGGGAGACAACCCGCCGCCCGCCCCGCAGAGGGTGGA	2900
CTCCATCCAGGTGCACAGCTCCCAGCCATCTGGCCAGGCCGTGACTGTCT	2950
CGAGGCAGCCCAGCCTCAACGCCTACAACTCACTGACAAGGTCGGGGCTG	3000
AAGCGTACGCCCTCGCTAAAGCCGGACGTACCCCCCAAACCATCCTTTGC	3050
TCCCCTTTCCACATCCATGAAGCCCAATGATGCGTGTACATAA-3`	3093

Fig. 2

```
   ggcacgaggctgcagccaactccgctccccgcgcactcggctgcccaggcgctcgga     57
acccagcagcggcgctcctccgcggtgccggtcgcccgcgatgcccgcttagcagcgtgt    117
agcagcggccagcatcaccacacccgcggcaccgcgctgccggccgcagagccgggccag    177
agccttgcccccctcccccagcccccacccccgccccccgccctgaaatgacttgttaatc    237
ggcgcagacaccaccaaggggactcaccgaagtggaatccaagtggaatttggatttgga    297
gaagagtttcttgaacatttaccctcttccttgttggttttcttttttcttttttcttctt    357
ttttttttggcttctttttttcctctcccccttctccgctcgtcattggagatgaacacatc    417
gcgtttgcatcccagaaagtagtcgccgcgactatttcccccaaagagacaagcacacat     477
gtaggaatgacaaaggcttgcgaaggagagagccgcagccgcggcccggagagatcccct     537
cgataatggattactaaatgggatacacgctgtaccagttcgctccgagccccggccgcc     597
tgtccgtcgatgcaccgaaaagggtgaagtagagaaataaagtctccccgctgaactact     657

ATGAGGTCAGAAGCCTTGCTGCTATATTTCACACTGCTACACTTTGCTGGGGCTGGTTTC     717
 M  R  S  E  A  L  L  L  Y  F  T  L  L  H  F  A  G  A  G  F
CCAGAAGATTCTGAGCCAATCAGTATTTCGCATGGCAACTATACAAAACAGTATCCGGTG     777
 P  E  D  S  E  P  I  S  I  S  H  G  N  Y  T  K  Q  Y  P  V
TTTGTGGGCCACAAGCCAGGACGGAACACCACACAGAGGCACAGGCTGGACATCCAGATG     837
 F  V  G  H  K  P  G  R  N  T  T  Q  R  H  R  L  D  I  Q  M
ATTATGATCATGAACGGAACCCTCTACATTGCTGCTAGGGACCATATTTATACTGTTGAT     897
 I  M  I  M  N  G  T  L  Y  I  A  A  R  D  H  I  Y  T  V  D
ATAGACACATCACACACGGAAGAAATTTATTGTAGCAAAAAACTGACATGGAAATCTAGA     957
 I  D  T  S  H  T  E  E  I  Y  C  S  K  K  L  T  W  K  S  R
CAGGCCGATGTAGACACATGCAGAATGAAGGGAAAACATAAGGATGAGTGCCACAACTTT    1017
 Q  A  D  V  D  T  C  R  M  K  G  K  H  K  D  E  C  H  N  F
ATTAAAGTTCTTCTAAAGAAAAACGATGATGCATTGTTTGTCTGTGGAACTAATGCCTTC    1077
 I  K  V  L  L  K  K  N  D  D  A  L  F  V  C  G  T  N  A  F
AACCCTTCCTGCAGAAACTATAAGATGGATACATTGGAACCATTCGGGGATGAATTCAGC    1137
 N  P  S  C  R  N  Y  K  M  D  T  L  E  P  F  G  D  E  F  S
GGAATGGCCAGATGCCCATATGATGCCAAACATGCCAACGTTGCACTGTTTGCAGATGGA    1197
 G  M  A  R  C  P  Y  D  A  K  H  A  N  V  A  L  F  A  D  G
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 K  L  Y  S  A  T  V  T  D  F  L  A  I  D  A  V  I  Y  R  S
CTTGGAGAAAGCCCTACCCTGCGGACCGTCAAGCACGATTCAAAATGGTTGAAAGAACCA    1297
 L  G  E  S  P  T  L  R  T  V  K  H  D  S  K  W  L  K  E  P
TACTTTGTTCAAGCCGTGGATTACGGAGATTATATCTACTTCTTCTTCAGGGAAATAGCA    1357
 Y  F  V  Q  A  V  D  Y  G  D  Y  I  Y  F  F  F  R  E  I  A
GTGGAGTATAACACCATGGGAAAGGTAGTTTTCCCAAGAGTGGCTCAGGTTTGTAAGAAT    1417
 V  E  Y  N  T  M  G  K  V  V  F  P  R  V  A  Q  V  C  K  N
GATATGGGAGGATCTCAAAGAGTCCTGGAGAAACAGTGGACGTCGTTCCTGAAGGCGCGC    1477
 D  M  G  G  S  Q  R  V  L  E  K  Q  W  T  S  F  L  K  A  R
TTGAACTGCTCAGTTCCTGGAGACTCTCATTTTTATTTCAACATTCTCCAGGCAGTTACA    1537
 L  N  C  S  V  P  G  D  S  H  F  Y  F  N  I  L  Q  A  V  T
GATGTGATTCGTATCAACGGGCGTGATGTTGTCCTGGCAACGTTTTCTACACCTTATAAC    1597
 D  V  I  R  I  N  G  R  D  V  V  L  A  T  F  S  T  P  Y  N
AGCATCCCTGGGTCTGCAGTCTGTGCCTATGACATGCTTGACATTGCCAGTGTTTTTACT    1657
 S  I  P  G  S  A  V  C  A  Y  D  M  L  D  I  A  S  V  F  T
```

Fig. 2 (cont.)

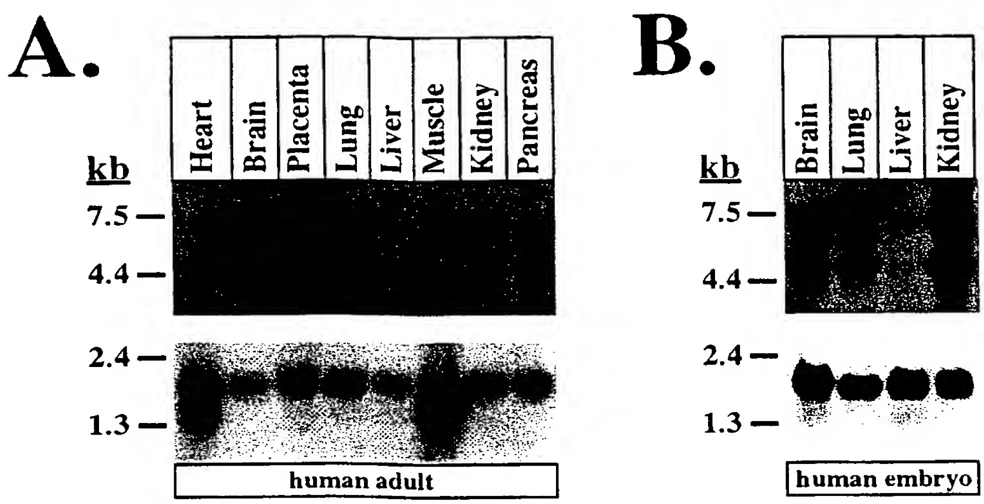
```
GGGAGATTCAAGGAACAGAAGTCTCCTGATTCCACCTGGACACCAGTTCCTGATGAACGA  1717
 G  R  F  K  E  Q  K  S  P  D  S  T  W  T  P  V  P  D  E  R
GTTCCTAAGCCCAGGCCAGGTTGCTGTGCTGGCTCATCCTCCTTAGAAAGATATGCAACC  1777
 V  P  K  P  R  P  G  C  C  A  G  S  S  S  L  E  R  Y  A  T
TCCAATGAGTTCCCTGATGATACCCTGAACTTCATCAAGACGCACCCGCTCATGGATGAG  1837
 S  N  E  F  P  D  D  T  L  N  F  I  K  T  H  P  L  M  D  E
GCAGTGCCCTCCATCTTCAACAGGCCATGGTTCCTGAGAACAATGGTCAGATACCGCCTT  1897
 A  V  P  S  I  F  N  R  P  W  F  L  R  T  M  V  R  Y  R  L
ACCAAAATTGCAGTGGACACAGCTGCTGGGCCATATCAGAATCACACTGTGGTTTTTCTG  1957
 T  K  I  A  V  D  T  A  A  G  P  Y  Q  N  H  T  V  V  F  L
GGATCAGAGAAGGGAATCATCTTGAAGTTTTTGGCCAGAATAGGAAATAGTGGTTTTCTA  2017
 G  S  E  K  G  I  I  L  K  F  L  A  R  I  G  N  S  G  F  L
AATGACAGCCTTTTCCTGGAGGAGATGAGTGTTTACAACTCTGAAAAATGCAGCTATGAT  2077
 N  D  S  L  F  L  E  E  M  S  V  Y  N  S  E  K  C  S  Y  D
GGAGTCGAAGACAAAAGGATCATGGGCATGCAGCTGGACAGAGCAAGCAGCTCTCTGTAT  2137
 G  V  E  D  K  R  I  M  G  M  Q  L  D  R  A  S  S  S  L  Y
GTTGCGTTCTCTACCTGTGTGATAAAGGTTCCCCTTGGCCGGTGTGAACGACATGGGAAG  2197
 V  A  F  S  T  C  V  I  K  V  P  L  G  R  C  E  R  H  G  K
TGTAAAAAAACCTGTATTGCCTCCAGAGACCCATATTGTGGATGGATAAAGGAAGGTGGT  2257
 C  K  K  T  C  I  A  S  R  D  P  Y  C  G  W  I  K  E  G  G
GCCTGCAGCCATTTATCACCCAACAGCAGACTGACTTTTGAGCAGGACATAGAGCGTGGC  2317
 A  C  S  H  L  S  P  N  S  R  L  T  F  E  Q  D  I  E  R  G
AATACAGATGGTCTGGGGGACTGTCACAATTCCTTTGTGGCACTGAATGGGCATTCCAGT  2377
 N  T  D  G  L  G  D  C  H  N  S  F  V  A  L  N  G  H  S  S
TCCCTCTTGCCCAGCACAACCACATCAGATTCGACGGCTCAAGAGGGGTATGAGTCTAGG  2437
 S  L  L  P  S  T  T  T  S  D  S  T  A  Q  E  G  Y  E  S  R
GGAGGAATGCTGGACTGGAAGCATCTGCTTGACTCACCTGACAGCACAGACCCTTTGGGG  2497
 G  G  M  L  D  W  K  H  L  L  D  S  P  D  S  T  D  P  L  G
GCAGTGTCTTCCCATAATCACCAAGACAAGAAGGGAGTGATTCGGGAAAGTTACCTCAAA  2557
 A  V  S  S  H  N  H  Q  D  K  K  G  V  I  R  E  S  Y  L  K
GGCCACGACCAGCTGGTTCCCGTCACCCTCTTGGCCATTGCAGTCATCCTGGCTTTCGTC  2617
 G  H  D  Q  L  V  P  V  T  L  L  A  I  A  V  I  L  A  F  V
ATGGGGGCCGTCTTCTCGGGCATCACCGTCTACTGCGTCTGTGATCATCGGCGCAAAGAC  2677
 M  G  A  V  F  S  G  I  T  V  Y  C  V  C  D  H  R  R  K  D
GTGGCTGTGGTGCAGCGCAAGGAGAAGGAGCTCACCCACTCGCGCCGGGGCTCCATGAGC  2737
 V  A  V  V  Q  R  K  E  K  E  L  T  H  S  R  R  G  S  M  S
AGCGTCACCAAGCTCAGCGGCCTCTTTGGGGACACTCAATCCAAAGACCCAAAGCCGGAG  2797
 S  V  T  K  L  S  G  L  F  G  D  T  Q  S  K  D  P  K  P  E
GCCATCCTCACGCCACTCATGCACAACGGCAAGCTCGCCACTCCCGGCAACACGGCCAAG  2857
 A  I  L  T  P  L  M  H  N  G  K  L  A  T  P  G  N  T  A  K
ATGCTCATTAAAGCAGACCAGCACCACCTGGACCTGACGGCCCTCCCCACCCCAGAGTCA  2917
 M  L  I  K  A  D  Q  H  H  L  D  L  T  A  L  P  T  P  E  S
ACCCCAACGCTGCAGCAGAAGCGGAAGCCCAGCCGCGGCAGCCGCGAGTGGGAGAGGAAC  2977
 T  P  T  L  Q  Q  K  R  K  P  S  R  G  S  R  E  W  E  R  N
CAGAACCTCATCAATGCCTGCACAAAGGACATGCCCCCCATGGGCTCCCCTGTGATTCCC  3037
 Q  N  L  I  N  A  C  T  K  D  M  P  P  M  G  S  P  V  I  P
```

Fig. 2 (cont.)

```
ACGGACCTGCCCCTGCGGGCCTCCCCCAGCCACATCCCCAGCGTGGTGGTCCTGCCCATC  3097
 T  D  L  P  L  R  A  S  P  S  H  I  P  S  V  V  V  L  P  I
ACGCAGCAGGGCTACCAGCATGAGTACGTGGACCAGCCCAAAATGAGCGAGGTGGCCCAG  3157
 T  Q  Q  G  Y  Q  H  E  Y  V  D  Q  P  K  M  S  E  V  A  Q
ATGGCGCTGGAGGACCAGGCCGCCACACTGGAGTATAAGACCATCAAGGAACATCTCAGC  3217
 M  A  L  E  D  Q  A  A  T  L  E  Y  K  T  I  K  E  H  L  S
AGCAAGAGTCCCAACCATGGGGTGAACCTTGTGGAGAACCTGGACAGCCTGCCCCCCAAA  3277
 S  K  S  P  N  H  G  V  N  L  V  E  N  L  D  S  L  P  P  K
GTTCCACAGCGGGAGGCCTCCCTGGGTCCCCCGGGAGCCTCCCTGTCTCAGACCGGTCTA  3337
 V  P  Q  R  E  A  S  L  G  P  P  G  A  S  L  S  Q  T  G  L
AGCAAGCGGCTGGAAATGCACCACTCCTCTTCCTACGGGGTTGACTATAAGAGGAGCTAC  3397
 S  K  R  L  E  M  H  H  S  S  S  Y  G  V  D  Y  K  R  S  Y
CCCACGAACTCGCTCACGAGAAGCCACCAGGCCACCACTCTCAAAAGAAACAACACTAAC  3457
 P  T  N  S  L  T  R  S  H  Q  A  T  T  L  K  R  N  N  T  N
TCCTCCAATTCCTCTCACCTCTCCAGAAACCAGAGCTTTGGCAGGGGAGACAACCCGCCG  3517
 S  S  N  S  S  H  L  S  R  N  Q  S  F  G  R  G  D  N  P  P
CCCGCCCCGCAGAGGGTGGACTCCATCCAGGTGCACAGCTCCCAGCCATCTGGCCAGGCC  3577
 P  A  P  Q  R  V  D  S  I  Q  V  H  S  S  Q  P  S  G  Q  A
GTGACTGTCTCGAGGCAGCCCAGCCTCAACGCCTACAACTCACTGACAAGGTCGGGGCTG  3637
 V  T  V  S  R  Q  P  S  L  N  A  Y  N  S  L  T  R  S  G  L
AAGCGTACGCCCTCGCTAAAGCCGGACGTACCCCCCAAACCATCCTTTGCTCCCCTTTCC  3697
 K  R  T  P  S  L  K  P  D  V  P  P  K  P  S  F  A  P  L  S
ACATCCATGAAGCCCAATGATGCGTGTACATAAtcccaggggggaggggtcaggtgtcga  3757
 T  S  M  K  P  N  D  A  C  T  *

accagcaggcaaggcgaggtgcccgctcagctcagcaaggttctcaactgcctcgagtac  3817
ccaccagaccaagaaggcctgcggc
```

Fig. 3



(MMU)Sema6A-1 Distribution in Mouse Adult and Embryonic Tissues

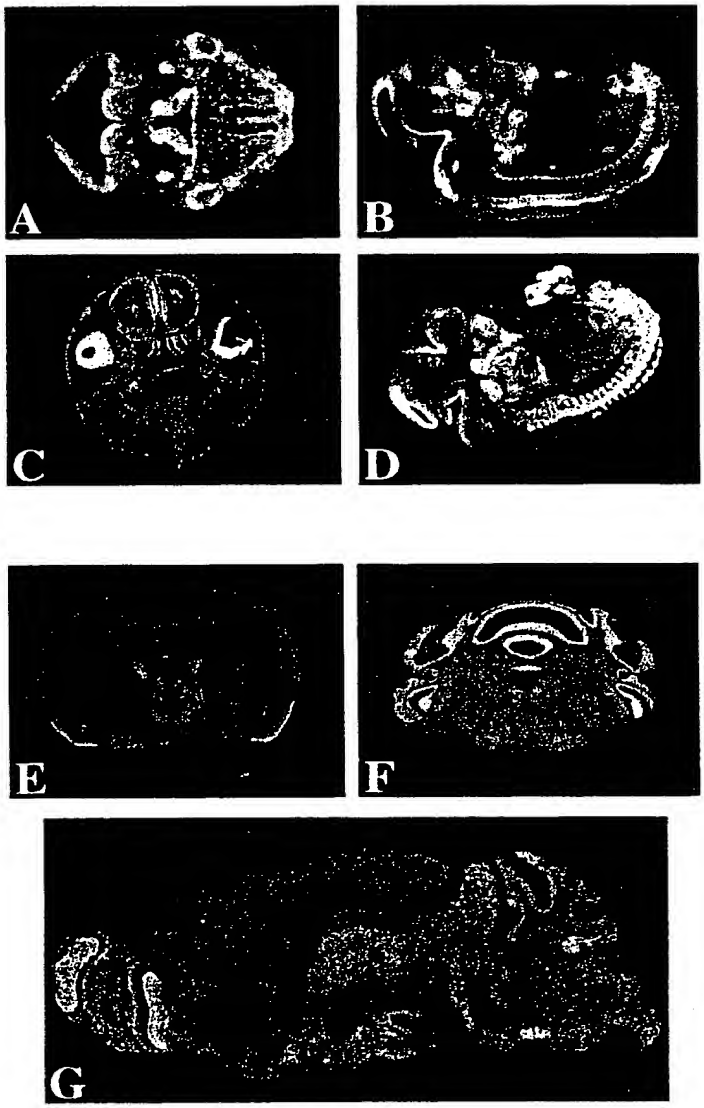


Fig. 4

(HSA)SEMA6A-1: Expression, Protein-Size and Dimerization

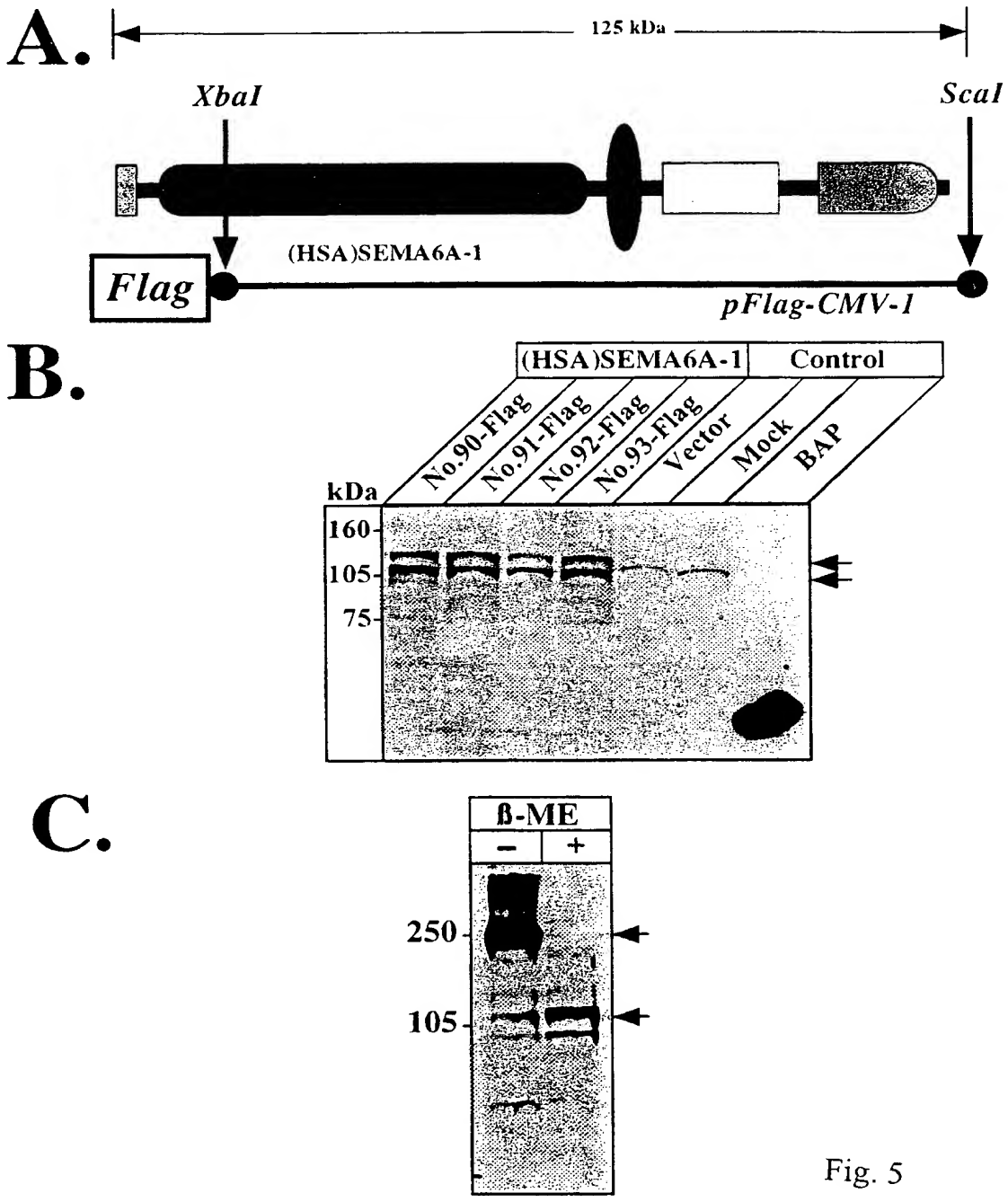


Fig. 5

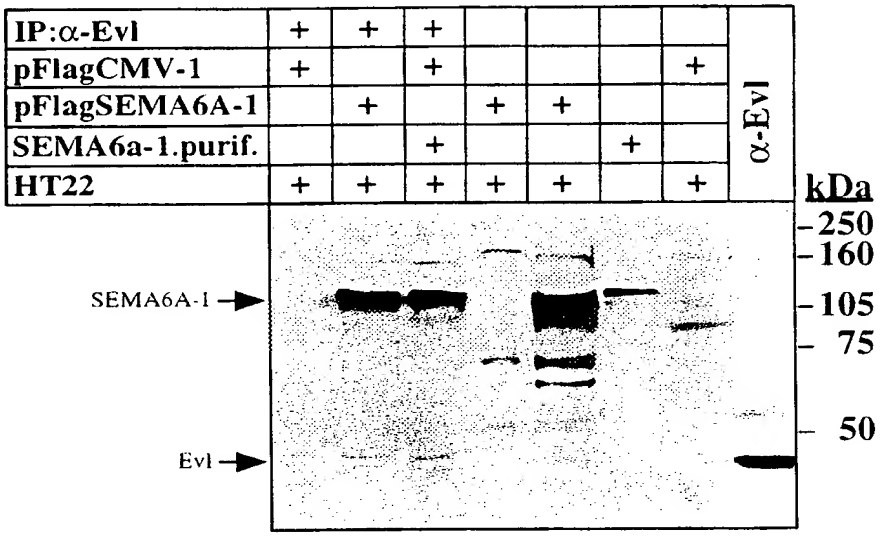
Fig. 6

Sequence-Alignment: SEMA6A-1 / Zyxin

```
SEMA6A-1                                                                    (6a)
PPPAPQRVDSIQVHSSQPSGQAVTVSRQPSLNAYNSLTRSGLKRTPSLKPD-VPPKPSFAPLSTSMKPNDACT
* * ***   +* *  **  +   *  ** +++ *+  *  * + *+  *   *  * * *+ +   *
PPPQPQRKPQVQLH-VQPQAKP-HVQPQP-VSSANTQPRGPLSQAPTPAPKFAPVAPKFTPVVSKFSP
zyxin                                                                       (6b)
```

Identity: 33%
Similarity: 49%

A.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kDa
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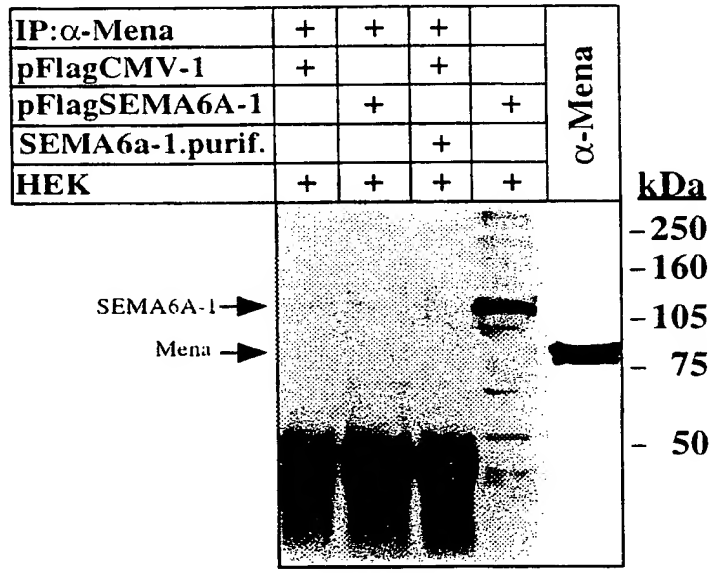
105
75
50
SEMA6A-1
Evl

B.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SEMA6a-1.purif. + + + +
HEK + + + +
α-Mena
kDa
250
160
105
75
50
SEMA6A-1
Mena

Fig. 7

Fig. 8

From Membrane to Cytoskeleton: Enabling a Connection

(Hu and Reichardt, Neuron, Vol. 22; March 1999)